

Case Report

Meckel's diverticulum: a rare cause of small bowel obstruction in an adult

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ABSTRACT

Meckel's diverticulum is the most common congenital abnormality of the gastrointestinal tract. Complications involving Meckel's diverticulum include bleeding, bowel obstruction and inflammation. We present a rare case of small bowel obstruction caused by Meckel's diverticulum. A 50-year-old male presented to the emergency department with abdominal pain and vomiting. Computed tomography (CT) abdomen showed dilated small bowel loops with transition zone at the mid ileum, consistent with small bowel obstruction. The patient was taken to the operating theatre for exploratory laparotomy and was found to have a Meckel's diverticulum causing mechanical small bowel obstruction, which was resected with primary anastomosis. The patient recovered with no postoperative complications and was discharged home. Meckel's diverticulum is difficult to diagnose preoperatively since most patients are asymptomatic and requires a high index of suspicion. In patients presenting with an acute abdomen, it may be overlooked because of nonspecific symptoms. In the case of small bowel obstruction, Meckel's diverticulum should be kept in mind as part of the differential diagnosis.

Keywords: Meckel's diverticulum, Small bowel obstruction, Intestinal obstruction, Acute abdomen

INTRODUCTION

Small bowel obstruction is responsible for 20% of all acute surgical admissions, with the most common cause being postoperative adhesions followed by hernias.¹ Meckel's diverticulum is the most common congenital abnormality of the gastrointestinal tract.² It results from incomplete obliteration of the vitelline duct during 5-7 weeks of embryonic development, leading to a true diverticulum on the antimesenteric border of the ileum.³ It occurs in approximately 2% of the population with a male-to-female ratio of 2:1, is located about 60 cm from the ileocaecal valve.⁴ It is usually asymptomatic or discovered incidentally during surgery performed for other reasons, however, 2% of patients develop a complication of Meckel's diverticulum during their lifetime, which

includes hemorrhage, intestinal obstruction and inflammation.⁵ Bowel obstruction can be caused by intussusception, volvulus, Littre's hernia or, rarely, a mesodiverticular band of the diverticulum.⁶ We present a rare case of a 50-year-old patient presenting with small bowel obstruction secondary to Meckel's diverticulum.

CASE REPORT

A 50-year-old male patient presented to the emergency department with a 2-day history of crampy abdominal pain and vomiting. There was no significant prior medical history and he had no surgical history. Physical examination showed a distended abdomen; there was generalized tenderness associated with rebound tenderness in the right lower quadrant. Bowel sounds were

hyperactive. Digital rectal examination was unremarkable. Laboratory investigations revealed leukocytosis (white cell count of $13.5 \times 10^9/l$) with neutrophilia (87.3%). Other blood tests were within normal limits. Abdominal X-ray showed multiple air-fluid levels and distended small bowel loops (Figure 1). Computed tomographic (CT) scan of the abdomen and pelvis revealed a picture of small bowel obstruction with a zone of transition at the mid ileum (Figure 2). The patient was urgently taken to the operating room for an exploratory laparotomy on diagnosis of small bowel obstruction in a virgin abdomen. Intraoperatively, there was a 3 cm Meckel's diverticulum approximately 20 cm from the ileocaecal valve and adherent to its own mesentery, causing mechanical small bowel obstruction (Figure 3); proximal small bowel loops were dilated and the distal small and large bowel were collapsed. Resection of the Meckel's diverticulum and adjacent small bowel segment was done and side-to-side small bowel anastomosis was performed. The specimen was sent for histopathology, which confirmed diagnosis of Meckel's diverticulum. The postoperative period was uneventful and the patient was discharged home after 5 days, with no evidence of complications upon follow-up in the outpatient clinic.

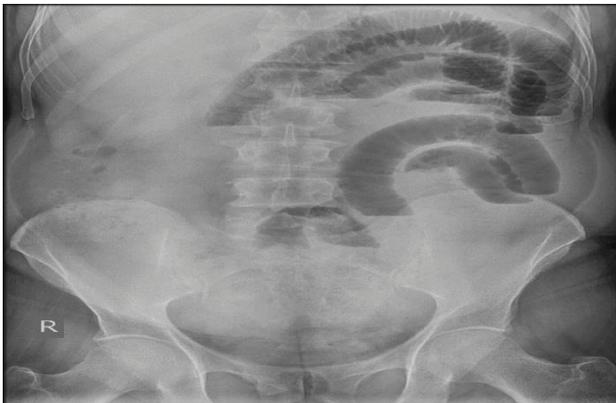


Figure 1: Plain film of the abdomen showing multiple air-fluid levels and distended small bowel loops.



Figure 2: CT abdomen suggestive of small bowel obstruction with transition zone at the mid-ileum.



Figure 3: Intraoperative finding of Meckel's diverticulum causing small bowel obstruction.

DISCUSSION

Meckel's diverticulum is the most common congenital anomaly of the small intestine, which has a prevalence of about 1-3%.² It is a true diverticulum that contains all layers of the intestinal wall. The size of a Meckel's diverticulum is variable, with an average length of 2.9 cm.⁷ The average distance from the ileocaecal valve varies with age, but it is usually found within 60 cm in adults.⁴ Most cases of Meckel's diverticulum are asymptomatic or an incidental finding, with a lifetime risk of 2% of developing complications.⁵

Common complications include hemorrhage, intestinal obstruction and inflammation (diverticulitis). There are various proposed mechanisms for bowel obstruction arising from a Meckel's diverticulum, such as volvulus of the diverticulum, intussusception, extension into a hernia sac (Littre's hernia) or trapping of a bowel loop by mesodiverticular band.⁶

Preoperative diagnosis of Meckel's diverticulum is usually difficult to make as most patients are asymptomatic, however, few imaging modalities have been used for diagnosis.⁸ Plain film of the abdomen may show dilated bowel loops and air-fluid levels, but these signs are usually nonspecific. Abdominal ultrasound may be able to demonstrate a fluid-filled structure in the right lower quadrant having the appearance of a tubular blind-ending, fluid-filled and thick-walled loop of intestine.⁹ On CT scan, Meckel's diverticulum is difficult to distinguish from normal small bowel in uncomplicated cases, however, a blind-ending fluid- or gas-filled structure in continuity with the small intestine may be seen.¹⁰

It is controversial whether all Meckel's diverticula found incidentally should be resected in asymptomatic patients, however, many surgeons recommend diverticulectomy based on lower morbidity rates compared to resection of pathologic diverticula.⁶ On the other hand, treatment for symptomatic patients should always include diverticulectomy or resection of the segment of bowel affected by the pathology, such as in our case.

CONCLUSION

Although Meckel's diverticulum is the most common congenital abnormality of the gastrointestinal tract, preoperative diagnosis is often difficult. Early surgery is important to prevent strangulation and gangrene of the bowel. Meckel's diverticulum should be kept in mind in the differential diagnosis of small bowel obstruction.

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